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Water Quality Monitoring Requirements in the CGP

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Disclaimer

Lawrence Livermore National Laboratory

Water Quality Monitoring Requirements in the CGP

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Environmental Functional Area

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Construction General Permit – Sampling Protocols and SMARTS Reporting

Welcome to the Workshop!

Plan for the day:

- Background CGP Sampling Requirements
- Introduction to SWAMP Protocols
- Field Monitoring Demonstration
- Summary of Reporting in SMARTS

Risk Levels and Monitoring

- Risk Levels applied based upon sediment risk and receiving water risk
  - ✓ **Risk Level 1** – Small projects, with low slopes that do not discharge into impaired (or 3 Beneficial Uses) water bodies.
  - ✓ **Risk Level 2** – Most projects with some erosion potential or near impaired (or 3 Beneficial Uses) water bodies.

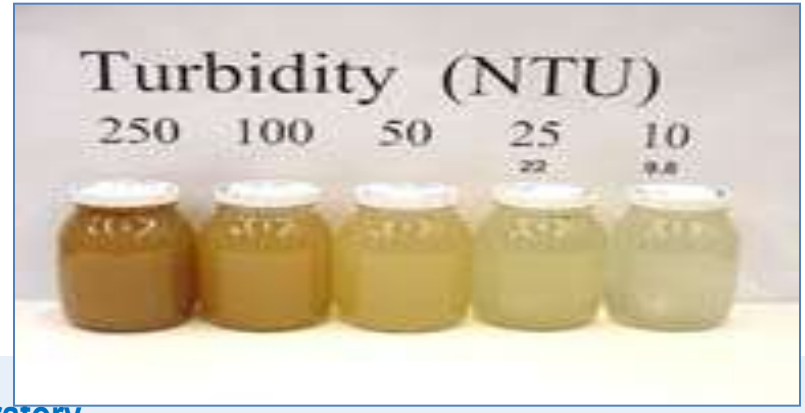
Table 4 - Required Monitoring Elements for Risk Levels

	Visual	Non-visible Pollutant	Effluent	Receiving Water
				(From CGP Factsheet pg 21)
Risk Level 1	three types required for all Risk Levels: non-storm water, pre-rain and post-rain	As needed for all Risk Levels (see below)	where applicable	not required
Risk Level 2			pH, turbidity	not required
Risk Level 3			(if NEL exceeded) pH, turbidity and SSC	(if NEL exceeded) pH, turbidity and SSC. Bioassessment for sites 30 acres or larger.

NALs and NELs

- **Numeric Action Levels** (NALs) An exceedance of an NAL triggers additional monitoring, investigation, and reporting requirements.
- **Numeric Effluent Limitations** (NELs) An exceedance of NELs is considered a permit violation. This General Permit contains NELs for Risk Level 3 projects.

NAL/NEL	Risk Level 1	Risk Level 2	Risk Level 3
Turbidity NAL	none	250 NTU	250 NTU
pH NAL	none	6.5 - 8.5	6.5 - 8.5
Turbidity NEL	none	none	500 NTU
pH NEL	none	none	6.0-9.0



Training and Certification

SWPPP Authors and Inspectors must hold certifications:

- SWPPP Preparers must be "Qualified SWPPP Developers" or QSDs
  - ✓ Professional Engineer (P.E.)
  - ✓ Professional Geologist (P.G.)
  - ✓ Registered Landscape Architect
  - ✓ Professional Hydrologist
  - ✓ Certified Professional Erosion and Sediment Control
  - ✓ Certified Professional Storm Water Quality

- Staff implementing SWPPPs (including visual inspections) must be "Qualified SWPPP Practitioners" or QSPs
  - ✓ Certified Inspector of Sediment and Erosion Control
  - ✓ Certified Erosion, Sediment, and Storm Water Inspector

Definitions

- **Turbidity** is the “cloudiness” of a water sample characterized by the scattering of light and expressed as Nephelometric Turbidity Units (NTUs).
- **pH** is a unit universally used to express the intensity of the acid or alkaline condition of a water sample.
- **SSC** is suspended sediment concentration measured as total mass per unit sample volume and expressed in mg/L.
- **Qualifying Rain Event** is any event that produces 0.5 inches or more precipitation with a 48 hour or greater period between rain events.

Risk Level 1 – Sampling Requirements

(From CGP Attach. C pg 11&12)

- Collect one or more samples during any breach, malfunction, leakage, or spill observed during a visual inspection which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water.
  - ✓ Collect samples at all discharge locations that can be safely accessed
  - ✓ Collect samples during the first two hours of discharge from rain events that occur during business hours and which generate runoff
  - ✓ Analyze samples for all non-visible pollutant parameters
  - ✓ Collect a sample that has not come in contact with the disturbed soil or the materials stored or used on-site (uncontaminated sample) for comparison to the discharge sample

Risk Level 2 & 3 – Sampling Requirements

(From CGP Attach. D pg 12-17)

- Collect grab samples from representative sampling locations.
- At minimum, collect 3 samples per day of the qualifying event.
- Collect effluent samples at all discharge points where storm water is discharged off-site.
- Monitor and report site run-on from surrounding areas if there is reason to believe run-on may contribute to an exceedance of NALs or NELs.
- Collect a sample of storm water that has not come in contact with the disturbed soil or the materials stored or used on-site (uncontaminated sample) for comparison with the discharge sample.

More Risk Level 2 & 3 – Requirements

(From CGP Attach. D pg 12-15)

- All storm water sample collection preservation and handling shall be conducted in accordance with “Storm Water Sample Collection and Handling Instructions” below.
  - ✓ For laboratory analysis, all sampling, sample preservation, and analyses according to 40 CFR Part 136 and field monitoring according to the manufacturer specifications
  - ✓ Samples must arrive at analytical laboratories within 48 hours of sampling
  - ✓ Use only the sample containers provided by the laboratory to collect and store samples
  - ✓ Designate and train personnel to collect, maintain, and ship samples in accordance with the Surface Water Ambient Monitoring Program’s (SWAMP) 2008 Quality Assurance Program Plan (QAPrP).

http://www.waterboards.ca.gov/water_issues/programs/swamp/docs/qapp/swamp_qapp_master090108a.pdf

Risk Level 3 – Sampling Requirements

(From CGP Attach. E pg 12-13)

- Sites that have violated the turbidity daily average NEL shall analyze subsequent effluent samples for pH, turbidity, and Suspended Sediment Concentration (SSC)
- If there is an NEL violation and this is a direct discharge into receiving waters, the RL3 discharger shall subsequently sample receiving waters for all parameter(s) (for the duration of Permit)
- RL3 dischargers disturbing 30 acres or more **and** with direct discharges into receiving waters shall conduct or participate in benthic macroinvertebrate bioassessment
- RL 3 dischargers shall electronically submit all storm event sampling results in SMARTS no later than 5 days after the conclusion of the storm event

Sampling Frequencies

Table 5 - Storm Water Effluent Monitoring Requirements by Risk Level *(From CGP Factsheet pg 23)*

	Frequency	Effluent Monitoring (Section E, below)
Risk Level 1	when applicable	non-visible pollutant parameters (if applicable)
Risk Level 2	Minimum of 3 samples per day during qualifying rain event characterizing discharges associated with construction activity from the entire project disturbed area.	pH, turbidity, and non-visible pollutant parameters (if applicable)
Risk Level 3	Minimum of 3 samples per day during qualifying rain event characterizing discharges associated with construction activity from the entire project disturbed area.	If NEL exceeded: pH, turbidity and suspended sediment concentration (SSC)., Plus non-visible pollutant parameters if applicable

Parameter Requirements Summary

Table 3 – Risk Level 3 Test Methods, Detection Limits, Reporting Units and Applicable NALs/NELs

Parameter	Test Method / Protocol	Discharge Type	Min. Detection Limit	Reporting Units	Numeric Action Level	Numeric Effluent Limitation
pH	Field test with calibrated portable instrument	Risk Level 3 Discharges	0.2	pH units	lower NAL = 6.5 upper NAL = 8.5	lower NEL = 6.0 upper NEL = 9.0
Turbidity	EPA 0180.1 and/or field test with calibrated portable instrument	Risk Level 3 Discharges other than ATS	1	NTU	250 NTU	500 NTU
		For ATS discharges	1	NTU	N/A	10 NTU for Daily Weighted Average & 20 NTU for Any Single Sample
SSC	ASTM Method D 3977-97[9]	Risk Level 3 (if NEL exceeded)	5	mg/L	N/A	N/A
Bioassessment	(STE) Level I of (SAFIT),[10] fixed-count of 600 org/sample	Risk Level 3 projects> 30 acres	N/A	N/A	N/A	N/A

Today's' Speakers!

Karen Worcester
Central Coast Regional Water Quality Control Board

Mary Hamilton
Central Coast Regional Water Quality Control Board

Russell Foster, CPESC
Pulte Group

THANK YOU!

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